MARINE REVIEW.

VOL. XIV. CLEVELAND, O., SEPTEMBER 3, 1896. No. 10.

Lake Passenger Steamers.

The passenger season, or at least the tourist and excurson part of it, is now practically at an end. There is naturally some interest as to whether big vessels like the Northern line steamers and the Manitou and Virginia on Lake Michigan, as well as the Detroit & Cleveland and Cleveland & Buffalo line boats, have made money out of their summer traffic. None of the managers are, of course, willing to give out figures, but it is certain that as far as passenger business is concerned the season has been a successful one, although several of these steamers that depend also upon freight traffic found a marked decrease in that regard. This is especially true of the Detroit and Cleveland boats.

The North Land leaves Buffalo on the 8th on her last trip and the North West leaves the same port on the 13th, also on her last trip. Both boats will lay up at the head of Lake Superior. Although the North West has been decidedly irregular again during the past season the North Land kept up to her schedule, and whatever may be said to the contrary, it is certain that these steamers carried a great number of passengers. On some trips the North Land booked as many as 1,000 passengers on the round trip between Buffalo and Duluth. This would include, of course, all local traffic, such as passengers traveling between Buffalo and Cleveland, Detroit and Mackinaw, etc. But the coal consumption of these big flyers has been immense. On her first five round trips, this season, the North Land burned per trip, on an average, 997 tons and 300 pounds. The round trip distance, Buffalo to Duluth, is 1,994 miles on the regular course, but it would be somewhat above 2,000 miles with these ships, on account of their putting into Cleveland and Mackinaw. Mr. Miers Coryell, representing the owners of the patents on the Belleville boilers, has given considerable attention to the boats during the past season, with a view to getting the boilers in better shape than they have been and also to reduce fuel consumption. He claims that a large part of the difficulty has been due to improper firing.

Probably none of the steamship companies are more pleased with their new boats than is the firm of Leopold & Austrian, owners of the Manitou. The Manitou is the principal steamer of the Lake Michigan & Lake Superior line. When she came out she had gunboat boilers but these were replaced by Scotch boilers of high pressure and the boat has been operated during the past season between Chicago and Mackinaw with great success. She has been making a regular weekly run of 2,160 miles, averaging 16½ miles an hour, and burning not more than 270 tons of coal a week. Including about $25,000 for replacing the gunboat boilers with those of the Scotch type, the Manitou has cost her owners only about $325,000. Her engines are triple expansion, with cylinders 23, 38 and 62 inches diameter by 36 inches stroke. Her Scotch boilers—there are four of them—are allowed 180 pounds working pressure. She is one of the most comfortable boats ever placed in service on the lakes and she is carefully managed. The success of the Manitou as regards promptness with her schedule and economical operation is due in no small part to her engineer, Mr. Peck, who was known, previous to going into this passenger boat, as one of the best of the engineers to be found on lake freight steamers.

Geo. H. Breyman & Bros. of Toledo were the lowest bidders, at 9 cents a yard, on a dredging job at Toledo, for which Col. Jared A. Smith, United States engineer, opened bids at Cleveland Wednesday. The work is on the Maumee bay straight channel and involves about 550,000 yards. Prices at which other contractors offered to do the work were: M. Sullivan, Detroit, 9.8 cents; W. J. Daly, Ogdensburg, 10 cents; L. P. & J. A. Smith, Cleveland, 14 cents; W. A. McGillis & Co., Cleveland, 11⅝ cents; R. J. Cram, Detroit, 18 cents; John Stang, Lorain, 16 cents; Carkin, Stickney & Cram, Detroit, 14¾ cents; James Rooney, Toledo, 10 cents.

Capt Geo. Brooks, assistant shipping master for the Lake Carrier's Association at Ashtabula, died suddenly at that place Wednesday.

Lake Freight Matters.

It is the opinion of most leading vessel men and shippers on the lakes that we have passed over the center as regards the depression in business generally throughout the country. With grain going out of the country in large quantities and gold coming back there should be no question of business improvement, if it were not for the political disturbances. Any improvement in the iron industry now would certainly result in profitable lake freights, on account of the grain movement, but the best judges of the iron market, especially the ore part of it, say that there is no hope for the balance of the season. Very close to 7,000,000 gross tons of ore has been removed from all uppper lake ports to Sept. 1. This means that only the contract vessels will be taken care of, and as the great bulk of contracts will expire within the next thirty days, the tendency from this time on must be to increase the number of vessels seeking grain cargoes. A canvas of ore shippers within the past few days brings out, however, one important feature. A short time ago it was generally expected that most of the ore shippers would ask vessel men with whom they had contracts to allow a part of the ore on these contracts to go over until next season. Now it is understood that all of the leading shipping concerns are quite confident of giving to the vessels all ore for which contracts were made. Arrangements for deferring payments on part of the freight have, of course, already been made in some cases, but it is expected that there will be few if any cases where parts of contracts are to be carried over to next year.

Cargo of 5,700 Tons—Latest Records.

The Mutual line steamer Coralia has again broken her own record in the Escanaba ore trade, having delivered at Ashtabula from Gladstone a cargo of 5,088 gross or 5,699 net tons on a draft of 16 feet 10 inches. In a previous issue of the Review the time of the Union line freight steamer Owego, on her famous run between Buffalo and Chicago, when she made 16.4 miles an hour on the entire trip, was given as 45 hours and 16 minutes when it should have been 54 hours and 16 minutes. It was a typographical error, caused by the figures being transposed. A correction has since been made in the record that follows:

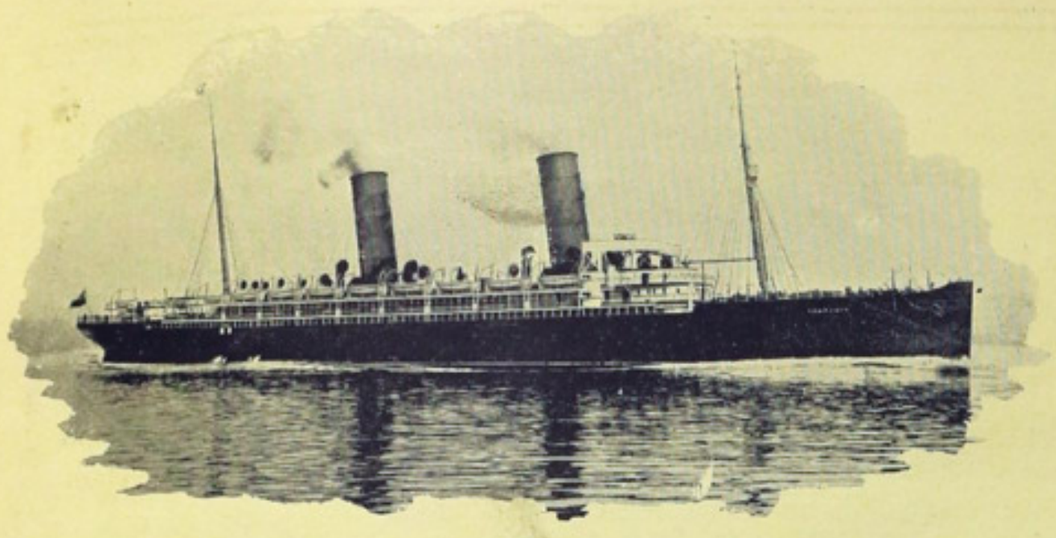
Iron ore—Coralia, Mutual Transportation Co. of Cleveland, 5,088 gross or 5,699 net tons, Gladstone to Ashtabula, draft of 16 feet 10 inches; S. S. Curry, Hawgood & very Transit Co. of Cleveland, 4,569 tons gross or 5,117 net tons, Escanaba to South Chicago, draft of 18 feet. Lake Superior cargoes—Steamer Sir Henry Bessemer, Bessemer Steamship Co. of Cleveland, 4,117 gross or 4,611 net tons, Ashland to Conneaut, draft of 14 feet 6 inches.

Grain—Steamer Queen City, A. B. Wolvin of Duluth, 207,000, bushels of corn, Chicago to Buffalo, 16 feet 8 inches draft; steamer Maricopa, Minnesota Steamship Co., Cleveland, 191,700 bushels of corn, Chicago to Buffalo.

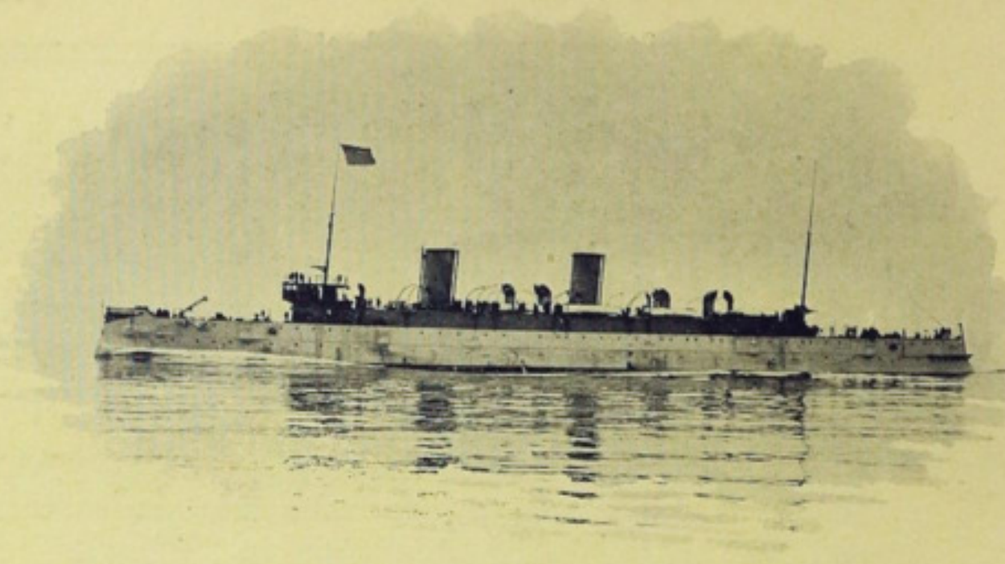
Coal—S. S. Curry, Hawgood & Avery Transit Co. of Cleveland, 4,535 net tons bituminous, Conneaut to Gladstone; Selwyn Eddy Eddy Bros. of Bay City, Mich., 4,252 net tons anthracite, Buffalo to Milwaukee.

Speed—Owego, Union Line of Buffalo, Buffalo to Chicago, 889 miles, 54 hours and 16 minutes, 16.4 miles an hour; Centurion, Hopkins Steamship Co. of St. Clair, Mich., Buffalo to Duluth, 997 miles, 65 hours and 10 minutes, 15.3 miles an hour.

Mr. W. J. White of Cleveland, owner of the steam yacht Say When, recently defeated by the Enquirer, announces that he will build before the yachting season opens in 1897 a yacht with which he will try to bring back to American lake yachtsmen the cup which the Canadians carried away from Toledo a few days ago. Most vessel men who witnessed the Toledo contests are of the opinion that in order to do this Mr. White will also have to undertake the task of training yachtsmen for the contest. They are unanimous in declaring that the Canadians out-generaled our yachtsmen at every point and that it was their skill that won the race more so than the yachts.



CUNARD LINER CAMPANIA, LARGEST AND FASTEST OCEAN PASSENGER STEAMSHIP IN THE WORLD, BURNING POCAHONTAS COAL.



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U. S. S. MINNEAPOLIS, BURNING POCAHONTAS COAL, MAKING 23.073 KNOTS PER HOUR, (FASTEST CRUISER SPEED IN THE WORLD).

More Laurels for

POCAHONTAS COAL.

The great race between Yachts "ENQUIRER" and "SAY WHEN" was won by the "Enquirer" through the use of POCAHONTAS COAL, again confirming the wonderful reputation of this Coal as the best steam fuel mined.

The Cruiser "BROOKLYN," which has just completed her trial trip developing the phenomenal speed of 21.95 knots per hour, thereby making her the fastest ship of her class in the world and earning $350,000 for her builders, USED POCAHONTAS COAL.

It is the standard coal for steamship purposes and all Government cruisers built on the Atlantic Seaboard for several years past have used it on their trial trips and thereby made their remarkable speed records.

The Boston Daily Globe of August 27th, 1896, Stated:

"The trial trip of the United States Cruiser Brooklyn was indeed a decided success, and not a little of this can be attributed to the fuel used—the Pocahontas Bituminous Coal.

"The Cramps take no chances in the choice of fuel. They know from past experience that this coal is the most superior and reliable fuel in this country, hence they will use no other.

"This coal, which has now reached the height of its fame, has a most remarkable record in the history of the trade. The first mine was opened in 1883, the shipments that year amounting to only 75,000 tons. In 1894 there were 38 collieries in operation, whose output (including tonnage converted into coke) aggregated 4,200,000 tons.

"Not only is it famous for the immense growth of its tonnage, but its reputation has also increased, until in the present day it enjoys the unique distinction of having been indorsed officially by the U. S. naval and war departments as the best America steam producing coal The British minister at Washington and all the leading steamship, railroad and manufacturing companies in the country indorse it."

CASTNER & CURRAN,

GENERAL SALES AGENTS FOR THE CELEBRATED

POCAHONTAS SMOKELESS SEMI-BITUMINOUS COAL.

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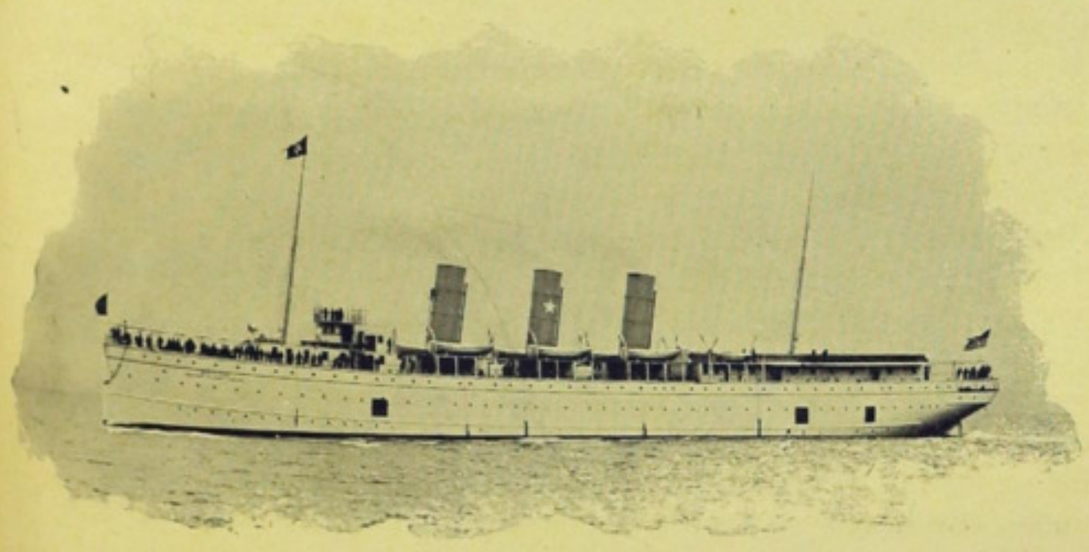
Old Colony Building, CHICAGO, ILL.
Board of Trade Building, COLUMBUS, OHIO.
4 Fenchurch Ave., LONDON, ENGLAND.



PASSENGER STEAMER NORTH WEST, BURNING POCAHONTAS COAL.

STEAM YACHT ENQUIRER, BURNING POCAHONTAS COAL.

Steam Yacht Race—Enquirer vs. Say When.

Editor Marine Review:—I have been much interested in the discussion of the steam yacht race between the Enquirer and Say When, which was printed in your issue of Aug. 20, particularly in the discussion of the subject by Mr. Ballin. There are some points which apparently need explanation. In the first place, Mr. Ballin states that the weight of the Roberts boiler in the Say When is fourteen tons, whereas it weighed only 15,221 pounds when it left our works, and contains 2,100 pounds of water at steaming level. There is considerable difference between this weight and the eleven tons which Mr. Ballin says is the weight of the boiler in the Enquirer. It is quite possible that the boiler in the Say When should have been larger, but the Roberts boiler was built to suit the conditions and the space which it could occupy. Owing to the limited head-room allowable for the boiler, the Roberts boiler was built very low and thereby lost considerable heating surface which might otherwise have been placed in it. The same cause prevents the boiler from being raised as high as it should be to allow ample admission of air under the grates, and the combustion has always been somewhat imperfect for this reason. Roberts boilers can be built with over 50 square feet of heating surface to 1 square foot of grate surface if the conditions will admit of it and require it.

There is such a thing, however, as having too much heating surface, as it undoubtedly adds to the weight without much greater efficiency. The proof of this statement is the fact that the recent well known experiments in England have shown that over 60 per cent of the evaporation in a water tube boiler is produced by the first two layers of tubes above the fire. Quantity of heating surface does not cover everything, as the arrangement of the heating surface is of at least as much importance. This is proved by Roberts boilers showing a smoke-stack temperature of only 40 degrees in excess of the temperature of the steam when they had only about 33 square feet of heating surface to 1 square foot of grate surface.

The Say When was orginally built for Mr. Norman L. Munro by the Herreshoff Manufacturing Co. under a guarantee of speed. This speed was not attained on the trial trip and Mr. Munro refused to accept the yacht. She was eventually purchased by the Hon. W. J. White, and her Herreshoff boiler was replaced by a Roberts boiler of the same dimensions. Mr. White wrote us a letter congratulating us upon the change of the speed of the boat and stated that the Roberts boiler had changed the Say When "from a dismal failure to a complete success." We quote his own words.

I congratulate Mr. Edward Gaskin, the talented superintendent of the Union Dry Dock Co., upon the success of the Enquirer and must say that it largely depended upon her model. The Say When was never considered a speedy boat until after she had a Roberts boiler, and I only regret that the conditions were not such as to allow the placing in her of a boiler of sufficient size. Nevertheless, I have never heard that she was lacking in steam. This Roberts boiler is now five or six years old, and, in addition to the handicaps previously mentioned, the boiler undoubtedly has more or less scale in it from the lime water in the lakes, as this would be the case in any boiler which had been used for that length of time with such water. This certainly did not, to say the least, increase its evaporative efficiency.

In conclusion I would say that although the Enquirer won the race, I think that the Say When could have done so if the water had been a little smoother and better adapted to her model and size, and although the Enquirer as a complete vessel was the victor, I think that, as far as boilers were concerned, the Roberts boiler showed itself to be the superior, as it furnished steam for a much larger engine, notwithstanding its comparatively small size and weight. In addition to this I would say that the quadruple engine in the Say When was one of the first quadruple engines built in this country, and I really believe that the low pressure engine is a "drag" upon the rest of the machine, and that the boat would go faster if this part of the engine were detached. It will readily be seen also that, besides having a larger high pressure cylinder to fill with steam at each revolution, it has had to be filled with steam at a greater density, owing to the fact that it is released from that cylinder at a higher pressure owing to the type of engine. This calls for greater evaporation from the boiler, both on account of the increased size of the cylinder and the increased density of the steam which is required to fill it.

Query—If the Roberts boiler in the Say When could do as well as it did under the conditions of decreased heating surface (owing to decreased height allowed) and under other conditions above mentioned, what would have been the result with a Roberts boiler of ample size, and room in which to place it? E. E. Roberts.
New York, Aug. 27, 1896.

No Passengers on Lehigh Boats.

Editor Marine Review:—In your issue of Aug. 20, I note under the caption of "In General" the following article:

"It is understood that as a result of the low freights this summer, and the unusual demand upon owners to carry passengers on freight boats, the Lehigh Valley Co. has made a low fixed charge for passengers, to cover extra expense of provisions and help in the steward's department, with the understanding, of course, that no passengers are to be carried excepting such as have been shown this courtesy in the past without charge."

I wish to state that I did not think it possible that you would permit such a stupid article to appear in your paper. Without accommodations for more than three passengers on board of any ship in our line, and with a standing order that no passengers, under any circumstances, shall be carried in the line, it is aggravating to the company to find such stuff as this pubished for information. W. P. Henry.
Buffalo, Aug. 28, 1896.

Capt. Henry's usual vigorous style of writing is visible in the above communication. He will probably admit with other readers of the Review, however, that our columns are as free from "stupid articles" as are those of most similar publications. We are pleased to correct the error, but must state in justice to ourselves that the article was based on a statement made by one of the captains in the Lehigh line.

Proposed Ottawa Canal.

The great bulk of the traffic on the upper lakes is now being conducted in vessels of such large dimensions and draught of water that they can not avail themselves of the Canadian canal system from Port Colborne to Montreal, nor will they be able to do so when all of the canals are enlarged to the extent at present contemplated. Canada possesses through its St. Lawrence and Ottawa routes the shortest, cheapest and quickest water channels from the great west to the ocean and Europe. If we hope to secure our natural share of the trade of the west, we must adapt our system to the capacity of the large vessels now employed on the upper lakes, and this is all the more urgent because the tendency is constantly towards a still larger capacity. This can only be effected by enlarging and deepening our present canals to correspond with capacity required; or by building new canals via the Welland and the St. Lawrence river, which would probably cost less than the enlargement; or by utilizing the Nipissing and Ottawa route for barge transportation. A great deal can be said in favor of the last proposition. With large elevators at French River and Montreal, with large locks through which a tug and consorts could pass with one lockage, this should prove the most economical means of transportation that can be adopted. The cost of elevators and transhipment at the western terminus would be insignificant as compared with the saving of interest on cost of the proposed canal as compared with a 20-foot ship channel. If the traffic prospects for the Ottawa canal are such as to justify its construction, it ought to be undertaken and operated as a government work, to be employed in connection with and supplementary to the Welland and St. Lawrence route. A charter should not have been granted to any company for a work of such magnitude and importance, which may be used as a competitor instead of an addition to the government canal system. We notice that an application is being made to parliament for amendments to the charter, for extending the time within which operations were to be commenced, etc. As the charter has expired through non-fulfillment of conditions, it is to be hoped that parliament will refuse to extend it. The country will cordially approve of a sufficient money appropriation being made to procure a thorough survey of the proposed canal and reliable estimates of cost and probable through and local traffic to be obtained. We believe that the cost will be so moderate, and the public advantages so great, that the government will see its way towards the early construction of this Ottawa canal.—Canadian Manufacturer.

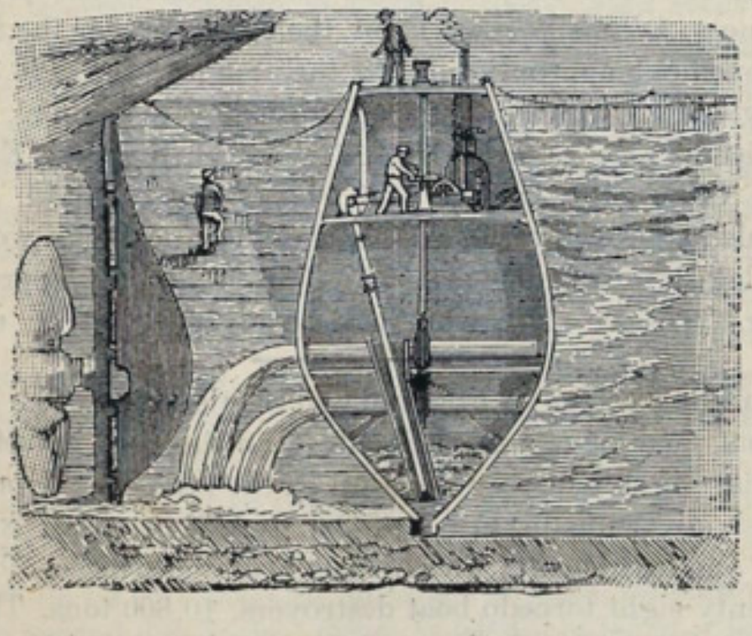
Speed of Bessemer Company's Steamers.

It is quite certain now that some lively trials of speed will be had between the new steamers of the Bessemer Steamship Co., especially when an opportunity is found to run them without consorts. The two steamers built by the Globe Company, Cleveland, are good 15-mile boats running light. These are the Bessemer and Siemens. The Bessemer has made 15 miles light and 13½ miles loaded on several occasions without difficulty. A speed of 15 miles may hardly seem worthy of note, but notwithstanding the number of claims that are made for highers peed, it would probably be found, if the facts were fully known, that there are not more than half a dozen iron ore carriers on the lakes that make fifteen miles in regular service. The Mutual line steamer Coralia, which is a duplicate of the Besemer in dimensions, and which was built by the same company, has been making only 13 miles when running light in regular service, but it is expected that a change of wheel will improve her time materially. However, the Coralia has not as much power as the Bessemer, and it was not expected that she would attain a speed of full 15 miles. Her engines are 24, 39 and 63 by 42 inches, while those of the Bessemer are 25, 41 and 66 by 42. Both the Coralia and the Bessemer have four boilers, but those of the former are each 11 feet 9 inches by 10 feet while those of the latter are 11 feet 2 inches by 11 feet 2 inches.

The opening contest of speed between ships of the Bessemer line is not expected, however, until the two steamers building at Detroit, the Fairbairn and the Fulton, are in commission. With the aid of Howden draft, the Detroit Dry Dock Co. undoubtedly expects to turn out a couple of fast freight carriers for the Bessemer company, but they must improve upon 15 miles an hour if they are to beat the Cleveland boats. There are now four of the Bessemer ships in commission—Steamers Bessemer, Siemens and Ericcson and barge Holley. Another steamer, the Fairbairn, will leave Detroit about Saturday next, and two barges, the Corliss at South Chicago and the Nasmyth at West Bay City, will be ready within a week. The second barge at South Chicago, to be named Krupp, will be out about the 20th, but of the remaining four boats none are expected before Oct. 1. These are the steamer Fulton at Detroit, steamer Stevenson and barge Bell at West Bay City and the Watt at the Cleveland Ship Building Company's works. Interest in the question of speed will be still further increased when the steamers building at West Bay City and at the Clevelandl Ship Building Co's works are in commission.

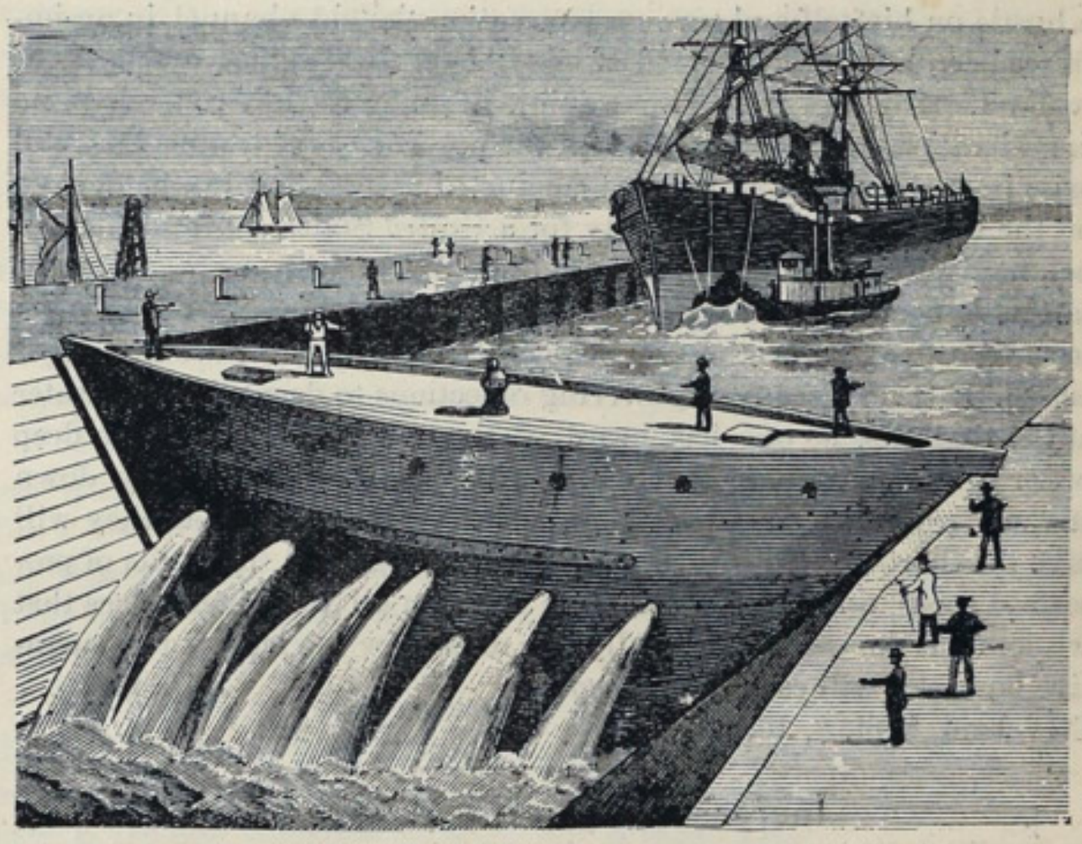
A Dry Dock Accident.

Brief dispatches in the daily papers referred to an accident on Aug. 8 to the Simpson dry dock at New York navy yard, Brooklyn. The accident was a serious one, as this was the only big dock available in New York harbor for large war ships. The big stone dock at the same yard is not yet complete. The dock in which the accident occurred is of wood, 500 feet long with a top width of 130 feet 4 inches. The dock was pumped out and by some means the caisson which closes its mouth, was lifted from its seat so as to permit the entrance of



water. As the water increased in depth, the caisson was lifted further from its seat. The water rushed madly into the dock, carrying with it the caisson, which capsized and sank. The torpedo boat Ericsson was also carried with the rush of water and its bows stove in. The commandant's launch was wrecked and several other vessels torn from their moorings. The accident, which was an unprecedented one, is attributed to the fact that the caisson was too light. It seems that a number of tons of ballast had been removed from it in order to permit the cleaning of its bottom, and this ballast it was proposed to replace by concrete ballast. It was supposed naturally that the caisson would stay in its place as the water pressed it against the gasket, but on account of an unusually high tide, or other cause, the accident occurred.

Engravings printed herewith give an idea of what a dry dock caisson is like. To all intents and purposes it is a very deep narrow vessel, somewhat like a cutter. It is of such size as to fill the opening of the dry dock. It is prevented from entering the dock by its keel, stem and stern post, which form a uniform flange around its bottom and sides, and which bear against a projecting piece at the mouth of the dock. A rubber gasket is attached to the face of the projection,



so as to make a water-tight joint as the caisson is pressed against it. One illustration gives a cross section of the caisson and shows the method adopted to admit water when the dock is to be filled by means of pipes extending through the hull. This feature is also brought out in the illustration of the caisson in place at the opening of the dock where the water is seen streaming through it. It is manipulated by flotation. When the dock is full of water, the caisson is lightened by pumping out water ballast. If in place closing the dock, it will rise from its seat, and can be pulled to one side. For replacing, it is floated into position, ballasted down to its seat, and the water in the dock is pumped out. The illustrations have been reproduced from the Scientific American, New York.

Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store in regular elevators at the principal points of accumulation on the lakes on Aug. 29, 1896:

	Wheat, bushels.	Corn, bushels.
Chicago	12,962,000	5,718,000
Duluth	4,621,000	20,000
Milwaukee	293,000	1,000
Detroit	413,000	29,000
Toledo	796,000	107,000
Buffalo	1,265,000	434,000
Total	20,350,000	6,309,000

As compared with a week ago, the above figures show at the several points named a decrease of 388,000 bushels of wheat, and 283,000 bushels of corn.

Puget sound ship builders have been invited by the navy department to bid for the construction of one or more of the torpedo boats authorized by the last congress. There are three ship building concerns in Washington on the sound, viz., the Puget Sound Engineering Works of Port Townsend, Moran Bros. Co. of Seattle, and the Everett Steel Barge Co. The first two have been or are now engaged on naval work. The Everett concern, which was started by Capt. Alex. McDougall of the American Steel Barge Co., has built only a merchant ship, the whaleback steamer City of Everett.

A Facetious Hint to Uncle Sam.

Editor Marine Review:—While common consent invited or gave our Uncle Sam the desirable occupation of collecting fares for our speed on the Sault river, and the realizing sense is impressed on all of us that he has arrogated to himself the additional enjoyment of taking boat and cargo for failure to notice additional mandates in the way of toots of whistles, motions of steam launches, flags on sticks, gilt on collars, hats and shoulders, and a general respect for anything outside of business that might be concocted or devised on board that school of thought named after His Accidency, Andy Johnson, there is still in the mind of the common sailor a great necessity for our rich uncle to get a hustle on himself and give transportation the old channel in an improved condition, to accomodate the "deep draft" that is soon to be realized. The loss of one hour's time in going the old route is of no consideration when compared with the possibilities of trouble that will arise in various ways in the best conducted system that can be devised on the new route. The necessity for a United States gunboat to compel navigators to observe certain lines of conduct, so as to insure safety, is something that a free and unlimited coinage of thought objects to, and asks for the privilege of the double route around Sugar island. If there are any engineering objections to deepening the water at the shallows, no one has heard of them, and there is much deep water where boats can run crazy with speed on their way down stream; where up-bound craft are never to be expected, as they will take the short way with their consorts and cargoes at the limits of proscribed speed, and so regulate their lives, in all the observances that wisdom has devised, until finally our uncle, for the lack of remunerative business, will call off his dogs. John Lowe.

Cleveland, Sept. 2, 1896.

Increase of Electric Power.

To gauge growth in the use of electricity attention should not so much be directed to the fields of the electric lighting and electric railways, as to that of electric power, a field which is now steadily repaying the arduous culture bestowed upon it during the past few years. Mills, mines, factories, shops of all kinds all over the country are steadily coming to the use of electric power. Economy and efficiency of this power is perhaps most forcibly demonstrated by the extent of the orders placed for power apparatus. From the power and mining department of the General Electric Co. it is learned that orders in 1892 aggregated 13,719 horse power; in 1893, 18,762 horse power; in 1894, 42,379 horse power, and in 1895, 46,727 horse power. In 1896 the missionary work of the past four years began to come to rapid fruition. From January 1 to July 31, the total horse power of the apparatus amounted to over 48,000. During the same period in 1895 the aggregate orders amounted to 25,737 horse power. From Aug. 1 to Aug. 18, the total amount of power apparatus ordered during 1896 was increased to the respectable figure of 62,164 horse power. Such a showing in the face of universal dullness in business everywhere is remarkable. It prompts a claim from electrical companies that during hard times the truest economy is the use of apparatus which costs least to operate.

Knots and Miles.

In distinguishing between the land mile and the nautical mile, it is very common of late to use the expressions "knots an hour" for speed, and "knots" for distance in miles. And yet these expressions are nautical barbarisms. Some writers on nautical subjects in English magazines are trying to head off this error but they have undertaken a big task. One of them says:

"There is a growing practice of making an improper use of the word knot, not only with landsmen, engineers, and ship builders, but also with sailors, who ought to know better. Tbe prevailing idea at present appears to be that the knot is the same thing as the geographical, nautical, or sea mile; and the word knot is used to prevent any possible confusion with the statute land mile. But this usage is quite wrong. The knot is the cosmopolitan unit of speed, employed at sea by sailors of all civilized nations. One knot is a speed of one nautical mile an hour, the nautical mile being the mean sexagesimal minute of latitude on the earth's surface; so that it is 90x60=5,400 miles from the equator to the pole; and this is the only mile the sailor knows and uses. The nautical mile is a little over 6,080 feet, the admiralty measured mile (we do not say the admiralty knot); so that one knot is a speed of a little more than 100 feet a minute, more nearly to 101 to 102 feet a minute. Thus on a log-line, with a half-minute glass or interval of time, the distance between the knots should be 50 feet, or a little over, say 51 feet. The word knot is derived from the knots on the log-line; the number of knots that pass over the ship's taffrail during the half-minute, or other interval of time, giving the speed of the ship in knots. The only occasion, then, in which it is permissible to use the word knot as the equivalent of a length, is in spacing the knots on the log-line; and then, by a familiar tendency in language, the 'distance between two knots' is abbreviated in speech to the 'length of a knot.' By a curious perversity and straining after precision, the incorrect expression 'knots an hour,' to express the speed of a ship, is creeping into general use, with the effect of displacing the word mile by knot. So that now it is quite common to read a steamers daily run as given in knots (e. g., Teutonic's daily runs 473 knots, 496 knots, etc., total distance 2,806 knots), and the coal endurance of a man-of-war given as say, 26,000 knots at 10-knot speed; thus using the word knot where mile should be used. No real sailor would say that a rock, or the land, was half a knot, one knot etc., away. It is too often urged that the expression 'knots an hour' is so much clearer and more definite; but we might just as well measrue pressures in 'atmospheres per square inch.' Not only in navigation, but also in astronomy, the nautical mile should be the unit of length, and the knot the unit of velocity."

Around the Lakes.

Mr. Luther Allen, secretary of the Globe Iron Works Co., who is in Europe will not sail for home until the 19th inst.

James Davidson's son-in-law, G. A. Tomlinson, of the firm of La Salle & Co., Duluth, is to have the Inman tug, now nearing completion at West Bay City, named in his honor.

Mr. Alex. McVittie of the Detroit Dry Dock Co. is not among vessel owners who are of the opinion that the limit has been reached in lake freight ships. He expects to see 500-foot ships shortly with breadth and depth increased proportionately.

J. E. McNally of Cleveland, who was at one time general agent for the Cleveland, Canton & Southern Ry. Co., and later in charge of lake coal shipments for H. D. Turney & Co., at Cleveland, has joined J. J. Boland of Buffalo in a vessel brokerage business. The new firm is J. J. Bóland & Co.

Ore docks of the new Lake Superior and Ishpeming road at Presque Isle, near Marquette, are said to be perfect in their construction and in appliances for handling ore. This is the road controlled by the Cleveland-Cliffs and Pittsburg & Lake Angeline ore companies. The 200 pockets have a capacity of 200 tons of ore apiece, making the total capacity 40,000 tons. The length of the docks is 1,200 feet, or 1,700 feet with approaches. It is expected that 300,000 to 400,000 tons of ore will go over these docks the present season. The ore cars are of 30 tons capacity.

The New York state canal board, which is composed of the elective state officers, has adopted plans and specifications prepared by State Engineer Adams for work on the canals under the $9,000,000 canal improvement appropriation, to the amount of $3,126,301. The work is divided as follows: Eastern division, Erie canal, $626,499; middle division, Erie canal, $909,017; western division, Erie canal, $1,033,557; Champlain canal, $409,502; Oswego canal, $147,726. The board also approved estimates for canal improvement work passed by the last legislature, and special canal improvement appropriations aggregating $207,000. This work will be advertised at an early day.

Ship building orders in England and Scotland are often on such a big scale that they have a marked effect on the steel industry. It is estimated that the five new battleships in the latest naval programme of the British government requrie 48,200 tons of material, exclusive of machinery and equipment; the thirteen armored cruisers 30,000 tons, and the twenty-eight torpedo boat destroyers, 10,800 tons. This makes an aggregate of 89,000 tons of material, altogether apart from engines, boilers and guns.

Commissioner of Navigation.

It was expected that Mr. E. T. Chamberlain, United States commissioner of navigation, would be on the lakes this week and would take up with officers of the Lake Carriers' Association a discussion of Sault river regulations, making a trip to the Sault for the purpose of satisfying himself as to conditions from personal observation. Mr. Chamberlain was, however, unable to make the lake trip, and it is probable now that Mr. Harvey D. Goulder, counsel for the association will go to Washington during the latter part of the present week to

E. T CHAMBERLAIN, U. S. COMMISSIONER OF NAVIGATION.

represent the vessel interests in the matter. There was no intention, anyhow, of taking up the question of a change of any kind in the rules until after the close of the present season of navigation, and Mr. Goulder's trip to Washington now will have to do principally with fines that have been imposed on a large number of steamers. There is little question of a final settlement of the rules, later on, in a satisfactory manner. Mr. Chamberlain has at all times shown a willingness to conduct the affairs of his office, as far as they relate to the lakes, in accordance with the best interests of the majority. He is a young man and has had no special training in shipping matters, but he has displayed sound judgment in his dealings with lake vessel men. He is a native of Albany, N. Y., and previous to his appointment of commissioner of navigation by President Cleveland was connected with leading newspapers of that city.

Ship Yard Matters.

The side-wheel steamer Corona, latest of the Canadian excursion steamers, owned by tthe Niagara Navigation Co. of Toronto, is now on the route between Toronto and points on Niagara river below the falls. The Corona is 277 feet over all, 270 feet on the water line, 32 feet moulded beam, 59 feet beam over guards, and 13 feet 6 inches depth of hold. Engines are of the inclined compound condensing direct acting type, with cylinders 45½ and 85 inches diameter, by 66 inches stroke. They are expected to develop about 2,000 I. H. P. Her paddle wheels are of the feathering type, 20 feet 6 inches in diameter outside of buckets, the buckets having a face of 9 feet 8 inches. Steam is supplied by six boilers, 8 feet in diameter and 16 feet long. There are two spearate fire holds, with three boilers in each. There is steam steering gear and a large electric light plant. She has a carrying capacity of 2,000 persons. Two smoke-stacks, one aft of the other, with considerable rake, give the vessel a fine appearance.

Some time ago it was said that the American Steel Barge Co. would build, on its own account, another 400-foot steamer and would also build a second dry dock. Other work included the lengthening of two whaleback barges brought from the coast recently. Now it is said that all of these plans have been put aside by the directors of the company, who were to use their own judgment in the matter, and that no new work will be undertaken until the political atmosphere is cleared up.

Saturday, Sept. 5, is the day set for launching the second Rockefeller steamship at the Wyandotte shipyards of the Detroit Dry Dock Co. She is to be named Robert Fulton. Considerable work is yet to be done on this steamer, and although a force of nearly 600 men are working, it is doubtful if launching will not have to be delayed a few days. The steamship Sir Wm. Fairbairn had steam on her engines on Saturday last and everything was found satisfactory. The Fairbairn will be ready for commision by the end of the present week. Supt. Thomas Bristow of the Cleveland Ship Building Co. paid a short visit to his old home and friends at Wyandotte on Sunday last.

L. P. & J. A. Smith of Cleveland have a good tug for outside purposes, for tending dredging plants or for wrecking in the Chancy A. Morgan, built from the steamer Riverside, which was in service on the Detroit river for a number of years. The boat is named for the manager of the Cleveland Tug Co. She has an abundance of deck room and quarters for a large crew, and as her power is large she will be fast. Her engine and boiler are practically new.

An extension of time on the work of constructing the revenue cutter Walter Q. Gresham has been granted to the Globe Iron Works Co., Cleveland, by Chief Shoemaker of the revenue cutter service. The boat will not now be finished until Nov. 1. Unusual delays in government work of this kind are caused by regulations which call for plans of all details, and these plans must in every case be passed upon and approved in Washington as the work progresses.

Some repair work is going on right along at Craig's steel and iron ship yard, Toledo. On Monday the car ferry steamer Shenango No. 2 was released from the dock after she had received a new wheel and repairs to her shaft. She struck an obstruction of some kind at Ashtabula. The steam barge Shrigley is now in the dock and will receive new steel arches.

The only new vessel given a place in the September supplement of the Inland Lloyds Vessel Register is the tug Wm. Stone, built at Vermillion and owned by J. Stone and others of Delroy. Her net tonnage is 160 and valuation $5,500. She is rated A1½.

Favorable to Howden Hot Draft.

Detroit Dry Dock Co., Detroit, Mich.—Gentlemen:—I am pleased to state that the Howden system of hot blast draft, placed in our steamers City of Alpena and City of Mackinac by your company, is giving most excellent satisfaction. In comparison with the natural draft furnaces in other steamers of about the same power owned by our company, its advantages are very apparent. The boilers in these two steamers are fully 25 per cent. smaller than those using only natural draft but consume a correspondingly less quantity of fuel, with the advantage of being able to burn either hard or soft coal. I consider that the difference in weight and the saving of fuel more than compensates for the cost of the apparatus. D. Carter,
Office Detroit & Cleveland Steam Nav. Co. General Manager.
Detroit, Mich., June 23, 1894.

A Buffalo correspondent says: "The big freight steamer Centurion was here recently with a part cargo of ore, 2,000 tons, consigned to the Buffalo Furnace Co., 'around the horn,' as it is called, and it took the tugs the greater part of an afternoon to move her through that sharp turn in Buffalo creek. The Centurion is the largest vessel by about 40 feet that has ever been 'around the horn.' The Schlesinger had a load for the same dock a short time ago and the tugs spent about as much time on her as they did on the Centurion. Everybody on the Centurion is elated over her recent fast run from this port to Duluth, when she averaged 15.3 miles an hour for the entire distance. They say they are ready to accommodate the Owego or the Chemung whenever either of these fast liners show up for a race."

A liberal export demand for grain has caused a lake movement that has never before been equalled during the summer months. During two weeks ending Aug. 28, the grain shipments out of Chicago aggregated nearly 8,000,000 bushels. Receipts of grain, including flour, at Buffalo to the first of September are said to foot up 107,000,000 bushels. The Buffalo figures are not entirely accurate but they are sufficiently reliable to show that receipts are full ten millions greater than they were at this time a year ago. Hard coal shipments out of Buffalo have also been quite heavy of late, exceeding those for last season thus far by 87,345 net tons.

MARINE REVIEW

DEVOTED TO LAKE MARINE AND KINDRED INTERESTS.

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The books of the United States treasury department on June 30, 1895, contained the names of the 3,342 vessels, of 1,241,459.14 gross tons register in the lake trade. The number of steam vessels of 1,000 gross tons, and over that amount, on the lakes on June 30, 1895, was 360 and their aggregate gross tonnage 643,260.40; the number of vessels of this class owned in all other parts of the country on the same date was 309 and their tonnage 652,598,72, so that half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1895, was as follows:

	Number.	Gross Tonnage.
Steam vessels	1,755	857,735.13
Sailing vessels	1,100	300,642.10
Unrigged	487	83,081.91
Total	3,342	1,241,459.14

The gross registered tonnage of the vessels built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

Year ending June 30, 1891	204	111,856.45
" " " 1892	169	45,968.98
" " " 1893	175	99,271.24
" " " 1894	106	41,984.61
" " " 1895	93	36,352.70
Total	347	335,433,98

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC. (*From Official Reports of Canal Officers.*)

	St. Mary's Falls Canal.			Suez Canal.		
	1895*	1894	1893	1895	1894	1893
No. vessel passages	17,956	14,491	11,008	3,434	3,352	3,341
Tonnage, net registered	16,806,781	13,110,366	9,849,754	8,448,383	8,039,175	7,659,068
Days of navigation	231	234	219	365	365	365

*1895 figures include traffic of Canadian canal at Sault Ste. Marie, which was about ¼ per cent. of the whole, but largely in American vessels.

Ensign William C. Cole, another naval officer who has been on the lakes just long enough to become acquainted with vesselmen and to gain a knowledge of the lake business that would enable him to be of special advantage to the department in its hydrographic work, has been ordered to sea. He goes to the Raleigh of the North Atlantic squadron. Mr. Cole has been in charge of the branch hydrographic office in Cleveland and was deservedly popular. It is unfortunate that changes in the stations of both army and navy officers occur so frequently on the lakes. Changes on the coast are probably made as often as they are on the lakes, but in the coast districts of the light-house service, army engineer corps, hydrographic service, etc., the work is much the same in one section as it is in another. On the lakes the conditions differ from those on the coast, and still in nine cases out of ten the new government officers coming here are men who have never seen the lakes. A light-house inspector from the Gulf of Mexico or the Pacific coast is ordered to Chicago, Detroit or Buffalo. When he learns of the extent of commerce and the size of vessels, he expects to find navigators using nautical instruments of all kinds and following the science of navigation in all its parts. It takes time to convince him that the business of the lakes is more readily handled by an abundance of land marks, by numerous coast and harbor lights and signals, and by the proper lighting and buoying of connecting channels. But the officer of the light-house or hydrographic service has hardly adjusted himself to these new conditions when he is moved to some other station. There is a vast difference in river and harbor improvement work here also, and officers of the army engineer corps should be permitted to remain longer on lake stations than is the case with some of them.

During national campaigns in the past flags of Republican and Democratic standard bearers were about evenly divided on lake ships. There was at least no such great difference as there is at present. Not a Bryan flag is to be found on a lake ship anywhere, while whole fleets may be seen passing up and down the Detriot and St. Clair rivers with McKinley and Hobart flags at mastheads. Ship chandlers have had wholesale orders from the big lines. "The jig was up," as one vessel owner put it, when Capt. "Willie" Young of Vermillion hurried into the Perry-Payne building recently and demanded of all hands that he be directed to Mark Hanna. He wanted a McKinley button and flag of the same kind for his steamer. He got both and declared that he was to break the record of a life of some sixty or more years by voting for McKinley.

In a recent issue of Review referred to the favorable opinion that vessel owners had formed of Col. G. J. Lydecker, on account of the courteous treatment received from him since he has been stationed at Detroit as successor to the late General Poe. The Marine Journal of New York referring to the note in the Review says: "Col. Lydecker couldn't help being courteous if he desired to be otherwise. He comes of a stock that were never excelled in courtesy. His father, the late John R. Lydecker, at one time deputy collector of New York, was a gentleman of the old school, kind, courteous and true. He was an intimate personal friend of President Arthur and a prominent man in the councils of the Republican party in New York state."

The American Ship Builder of New York, usually correct, falls into a strange error in its last issue. A picture of the Cunard liner Lucania, showing the big steamer in an approaching position, is printed with this line under it: "This picture will give our readers a good idea of the enormous size of the steamship Lucania's funnels, which are 22 feet in diameter." The picture shows an immense pair of funnels, but it happens to be a reproduction of a lithograph in which the artist made the smoke stacks about three times what they ought to be in proportion to the length given to the ship.

The last issue of the Iron Trade Review, Cleveland, contains an extended account of the 1896 meeting of the Lake Superior Mining Institute. This organization is made up of mining engineers and others interested in the development and operation of Lake Superior iron mines. Mr. A. I. Findlay, editor of the Iron Trade Review, was in attendance at the meetings of the association and his report of the proceedings is complete.

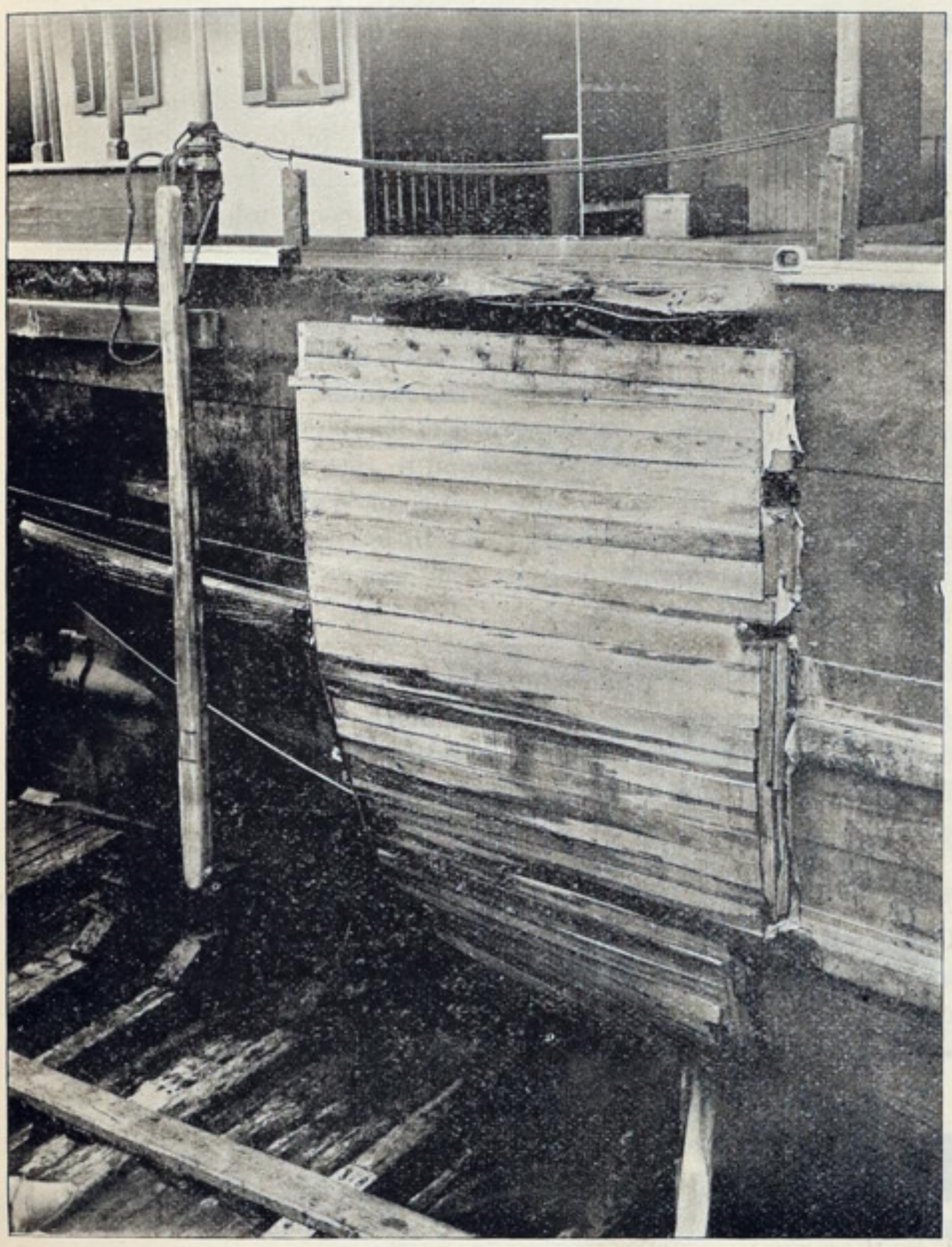
Technical Training for Engineers.

Of late years, many of the engineerng concerns throughout England and Scotland have reduced the five -year period of apprenticeship to young men who were striving to become marine engineers and who profited by attending, at night and during the winter period, some of the numerous schools where a technical training might be secured. The British board of trade recently decided that where apprentices have the advantages of engineering laboratories the time should count in proportion of three years to two. There is still a prejudice, however, in England, as well as in this country, against the young men who are advanced by technical education. Fairplay of London, dealing with the subject as it presents itself on the other side, says:

"It is only to be expected that engineers of the old school who have worked their way to the front can have little sympathy with the modern type of engineer, and look upon all such experience as so much humbug. But they must not forget that the engineering of the present time and that of their day are two totally different things. The hammer and chisel are superseded by the machine. No employer would ever think of employing manual labor now where it was possible to substistute machinery, so that the days of the hammer, chisel, and file are gone, and in their stead the engineer is merely a machinist which requires practically no manual labor, but as much intelligence as possible. Then again we have advanced from simple engines with boilers of ten pounds pressure to tubulous boilers of 250 to 300 pounds, and quadruple and even quintuple engines, not to speak of forced and induced draught. Are these changes brought about by hand or by head? There can be no difficulty in deciding. Technical education is a necessity, and whether it be attained by attending classes at night or by attending technical colleges, to those who can afford the same, it is only fair that such time, if properly applied and the necessary certificates obtained, should count as part of the apprenticeship of the engineer. After all, what is required of a sea-going engineer to obtain his certificate is this same technical education which the engineering chiefs referred to sneer at. The very first thing a sea-going engineer does is to stay at home for a voyage and go to a school to be worked up in drawing and mathematics. What manual labor is there to do for a sea-going engineer on a well-appointed set of engines such as there are in the big lines? Practically none; it is all head work. A breakdown may occur at long intervals when a little manual labor is required, but even such is minimised with the tools at the disposal of the engineers. No, we can not afford to sneer at technical training for engineers in these days, as we are getting too far advanced, and in order to keep in the front we must give more and more encouragement to the technical training of our budding engineers."

Wrecked Steamer Wm. Chisholm.

Two engravings on this page show the extent of injury sustained by the steel steamer Wm. Chisholm, as a result of her collision on the night of Aug. 14 with the Lehigh valley steamer Oceanica at Grosse point, just above Detroit. The views of the injured part of the steamer were made in the dock of the Cleveland Dry Dock Co., before and after taking off the patch by means of which she

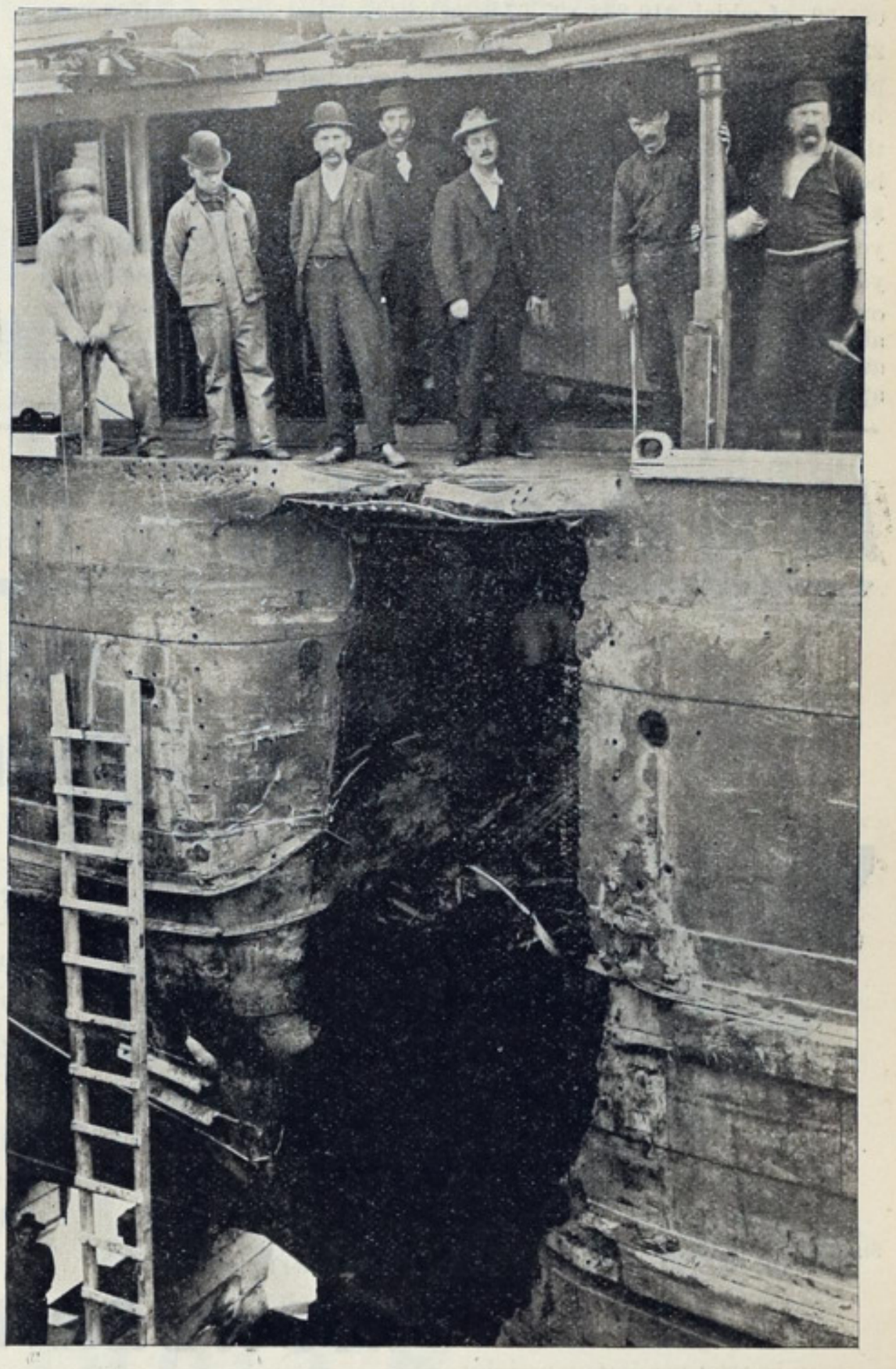


PATCH PLACED ON WRECKED STEAMER CHISHOLM BY DIVERS.

was raised from the bottom of the river, where she sank after the collision. The work of raising and repairing this steamer will probably prove the fastest job of its kind ever accomplished on the lakes. She will probably be in commission on the 10th inst., so that less than 30 days will have been spent in raising the ship, towing her to Cleveland, and then repairing practically her entire bottom as well as the injured part shown in the pictures. The job will probably represent an expenditure of full $10,000. There are some sixty-three plates to be taken from the bottom of the ship, and about the same number of frames are also injured. Most of these plates, probably all but ten or twelve of them, will be simply straightened and replaced, but the job is nevertheless a very extensive one. Capt. W. C. Richardson, manager of the Cleveland line to which the Chisholm belongs, happened to be in Detroit when the accident occurred, and was in position to make immediate arrangements with the Swain Wrecking Co., and with the underwriters, who were repesented by Capt. Geo. McLeod of Buffalo, for raising the ship. The Swain company is credited with another fast job in putting on the patch that permitted of the Chisholm being floated. Although the vessel was not in water deep enough to cover her entire, the patch had to be put on under water. The method of blowing out rivets by dynamite, in order to admit of bolts being used in fastening the patch, was used in this case, as in several others undertaken on the lakes recently, and the timber in the patch was also edge-bolted, so that the work of the divers was of a tedious kind. Capt. Richard Call, who was in command of the Chisholm, has been sailing since 1865 and has never before been in a collision, either as master, mate or seaman. There are as yet no details as to the cause of the collision, and there probably will be none until the case gets into court or is brought before arbitrators. The Chisholm's protest simply says she was in collision with the Oceanica.

Fastest of Her Class in the World.

In the new cruiser Brooklyn, which earned a premium, a few days ago, of $350,000 for the Cramps of Philadelphia, the growing navy of the United States has a vessel that stands at the head of her class in the world. The Brooklyn on trial averaged 21.92 knots, a rate of speed which was increased during part of the run to 22.9 knots. Her big engines averaged about 135 revolutions and were turned at times as fast as 139 revolutions per minute. This big cruiser is fitted throughout with every modern contrivance likely to give her quickness, power and a superb efficiency. Her electric plant alone is wonderful to see. It was built by the General Electric Co. The ship is steered and lighted with electricity, and her turrets are revolved by a special 52½-horse power motor suspended from the deck. There are five dynamos and four engines, run independently of the ship's main power. More than 700 incandescents light the craft. There are ten miles of wire between decks, including the wires or telephones and telegraph instruments. There are four search lights, each of them capable of finding an object ten miles. They take fifty volts and ninety amperes each. The Brooklyn is supplied with an entire outfit of Blake pumps, namely main and auxiliary feed pumps, fire pumps, and air pumps for the main condensers. The latter pumps are of the Blake vertical twin type, which made such a remarkable record for economy on all the trial trips of the Cramp cruisers and battleships.



WRECKED STEAMER CHISHOLM—PATCH REMOVED.

Castner and Curran, the general agents for Pocahontas coal, are especially elated over the results of the Brooklyn's trial. The total of premiums earned by war vessels using Pocahontas coal has now reached, in round figures, nearly $2,000,000.

Chicago Drainage Canal.

The whole volume of spoil (earth and rock) involved in the digging of the Chicago drainage canal, if deposited in Lake Michigan in 40 feet of water, would make an island one mile square with its surface 8 feet above the water line. The total amount of excavation involved in the construction of the main channel is 26,261,815 cubic yards of glacial drift and 12,006,984 cubic yards of solid rock, or an aggregate of 38,268,799 cubic yards, to which must be added the material excavated from the river diversion—glacial drift, 1,806,074 cubic yards; solid rock, 258,669 cubic yards; total river diversion, 2,064,743; grand total river diversion and main channel, 40,333,542 cubic yards. All of this work is now under contract and in addition thereto 384,958 cubic yards of retaining wall. The rock when broken up expands about 80 per cent. and therefore the volume of the rock spoil bank will be nearly 22,078,000 cubic yards.

Up to May 1, 1896, 21,654,064 cubic yards of glacial drift and 11,112,191 cubic yards of solid rock had been excavated, a total of 32,766,255 cubic yards, or 81.2 per cent. of the entire excavation; also 111,539 cubic yards of masonry laid in cement. There has been expended on the work up to May 1, 1896, for right-of-way $2,483,244.07 and for construction $13,543,473.08, a total of $16,026,717.15. This amount, together with the cost of administration, payment of bonds, interest etc., brings the total expenditure to May 1, 1896, to about $21,936,000. The estimated cost of all work under contract is $21,849,055.59, of which $19,242,827.67 is on construction account and $2,606,227.92 right-of-way account. The original contracts called for completion April 30, 1896. Extensions were granted to Dec. 1 of this year but some sections of the main channel will not be completed even at that time. The sanitary district has already issued $12,800,000 of bonds, all payable in currency, $8,000,000 being 5 per cent. bonds and $4,800,000 being 4½ per cent. bonds, running from one year to twenty years; one-twentieth of the issue must be paid off and retired each yaer, and $950,000 has already been retired, leaving $11,850,000 now outstanding. These bonds have been sold at an average premium of about 1 1-10 per cent. The taxes afford a revenue sufficient to pay off and retire one-twentieth of the issue each year, and leave a surplus to apply upon the current obligations incurred for construction.

In General.

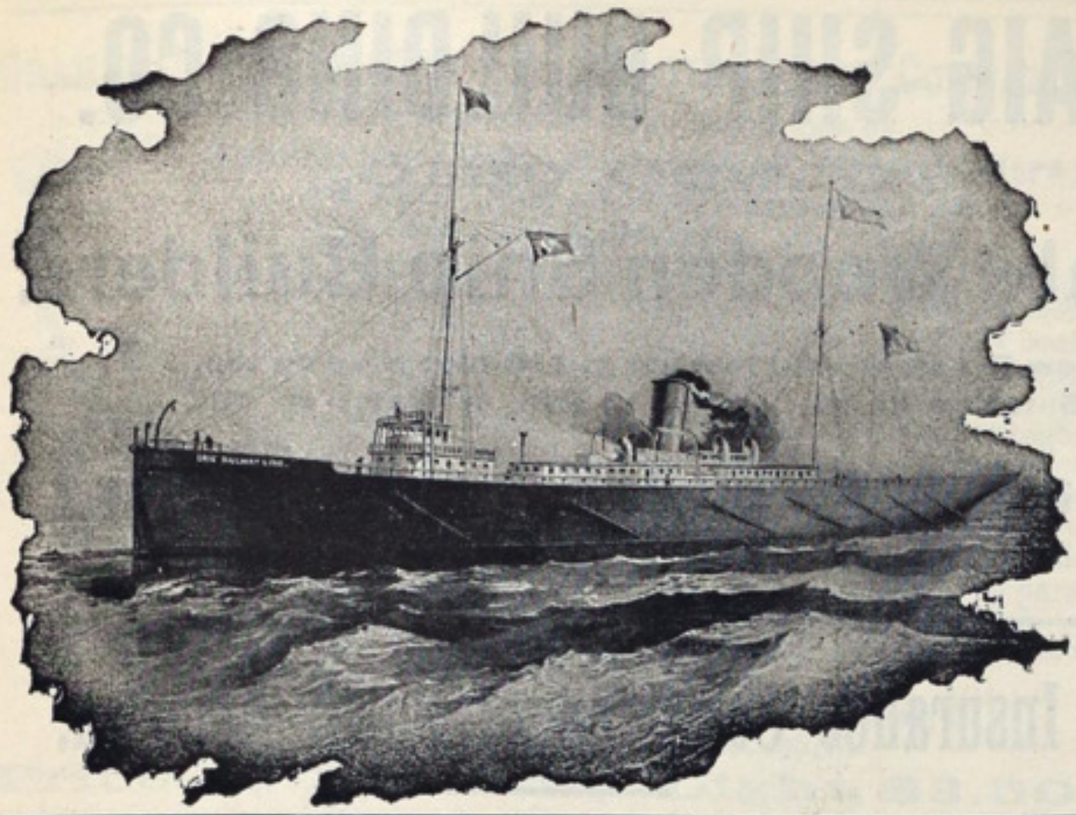
A 550-foot dry dock at the Erie basin, New York, with a big Hamburg-American line steamer in it, settled two feet recently, from causes that have not been explained. The dock gates creaked and groaned but did not give way. The dock was not materially injured.

The so-called roller steamer, which has attracted a great deal of attention in France and England, and which was illustrated and described in the Review of May 28, 1896, was launched at St. Denis, France, a few days ago. The vessel will traverse the Seine, cross the English channel and go to London.

Capt. C. W. McKay, son of the celebrated ship builder Donald McKay, and himself a designer and builder of many swift fore-and-aft vessels, has rediscovered the original British yacht. He says: "Phineas Pett, who invented the frigate, as is recorded on his tomb, also built the first yacht, as we now undertand the term. When a young man, Pett made a voyage to the Levant. He was two years knocking about the Mediterranean and adjoining seas, during which time he industriousy studied the war craft built by the Genoese and Venetians, who, at that time, were the greatest and most skilful ship builders in the world. On his return to England he was made assistant master shipwright at Chatham, and in 1603 he was commissioned to build a yacht for the young Prince of Wales, Henry, to disport himself in about London bridge. This little vessel was carved, gilded, and painted to the highest degree. She was 28 feet long and 12 feet wide."—Maritime Register.

The Blue Book of American Shipping answers questions that arise daily in every vessel agent or owner's office. If the book is not satisfactory it costs nothing, as the $5.00 will be returned. Order at once, No. 409 Perry-Payne building, Cleveland.

An excursion is to be run via the Nickel Plate road to Toronto, Niagara Falls and Thousand Islands. Two special trains will leave Cleveland Sept. 7, at 5:30 a. m. and 9:30 p. m. Toronto, $4.50; Niagara Falls, $3.50; and Thousand Islands, $9.00. Reserve sleepers early. 306 Sep 6



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Pockets and Chutes arranged for different types of vessels.

BEST STEAM COAL.

Large Supplies and every effort to give dispatch, day and night. Wide stretch of river for tows, and plenty of water at dock at all times.

Keeping a sharp look-out for Shipman's Koal Dock.

GIVE US a chance to prove that we can coal your boats with quick dispatch, and with most satisfactory fuel.

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OUR STOCK CONSISTS OF

"Keystone" Massillon, Youghiogheny, and Best Grades of Hocking Koals.

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DETROIT RIVER BRANCH—
Amherstburg, Steam Derricks; Sandwich, Ten Pockets and Two Steam Derricks.

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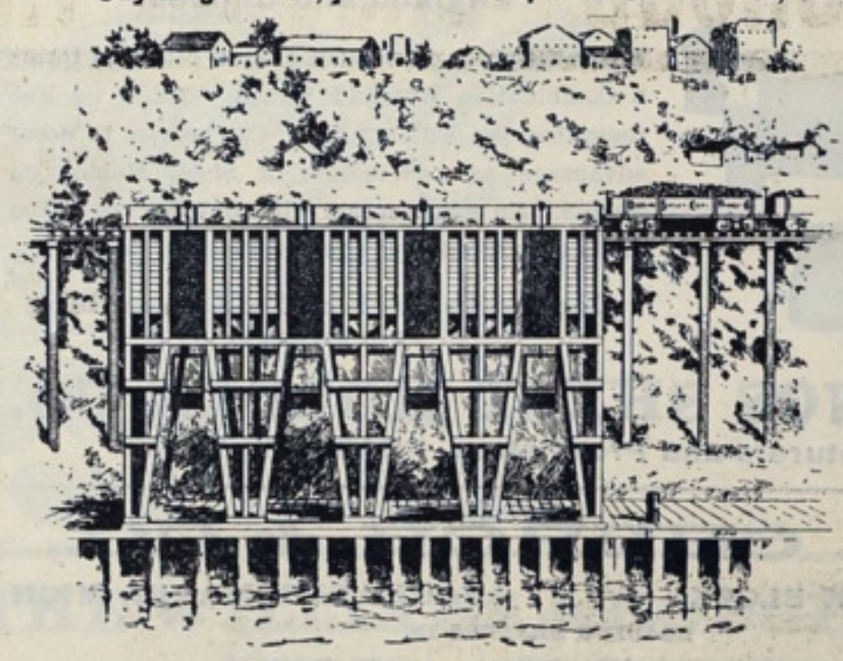

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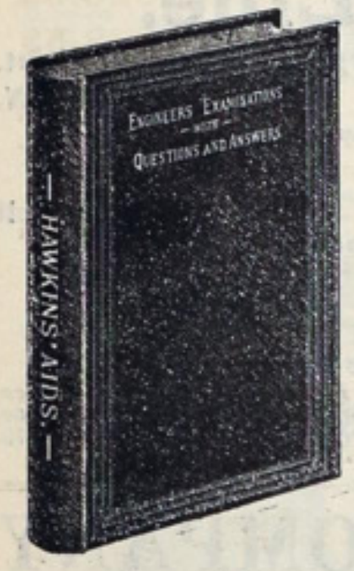

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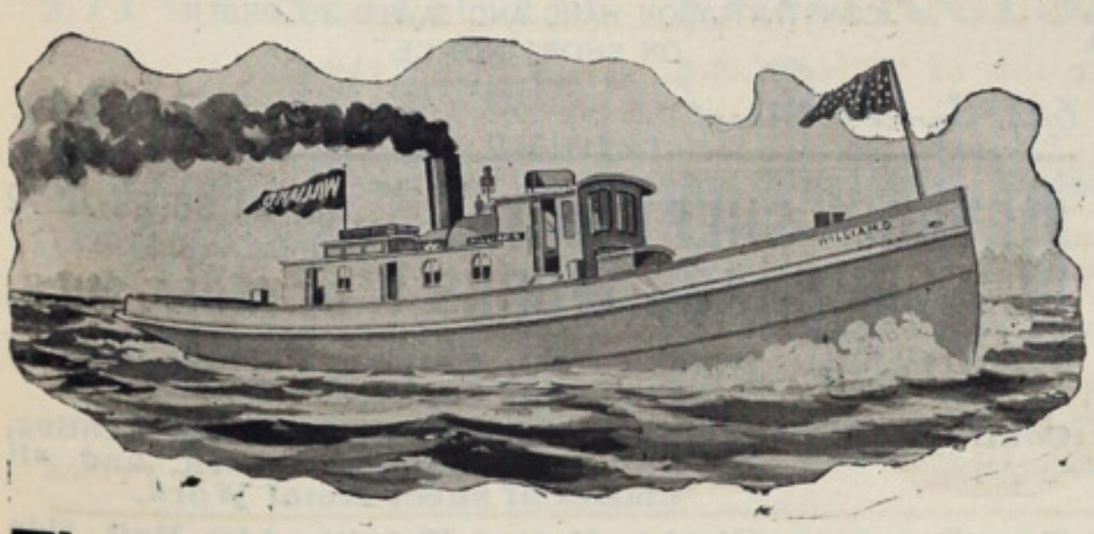

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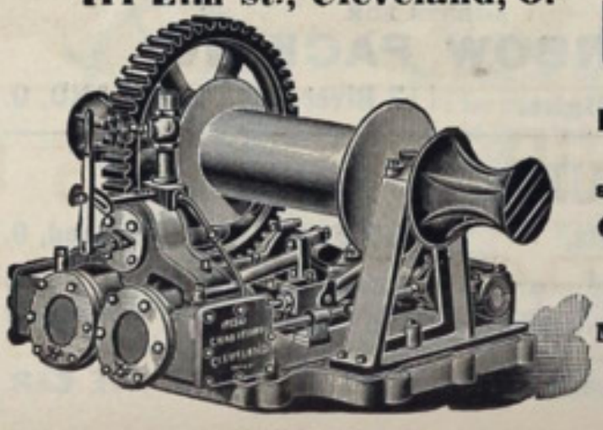

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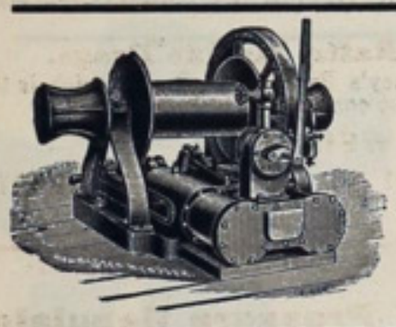

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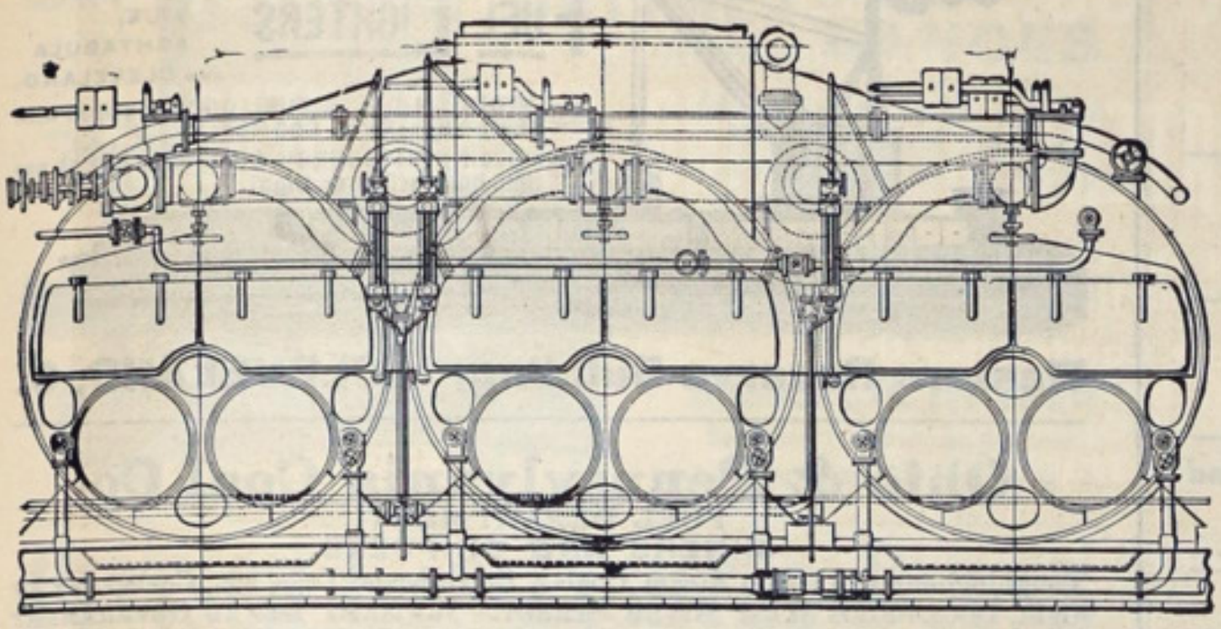

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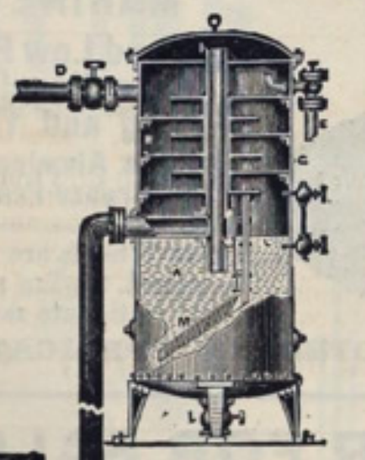

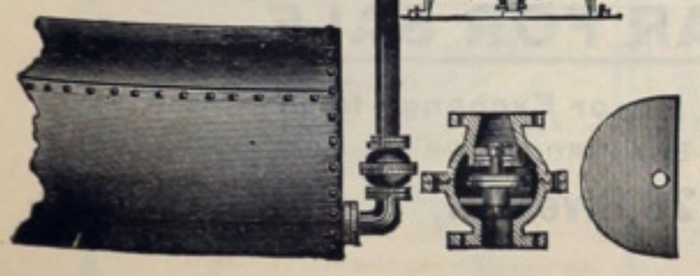

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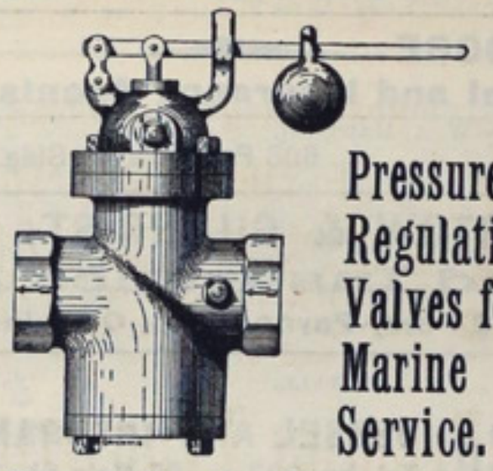

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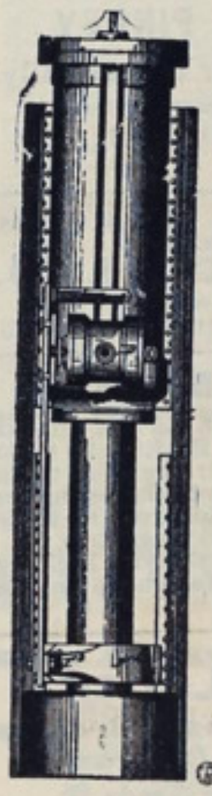

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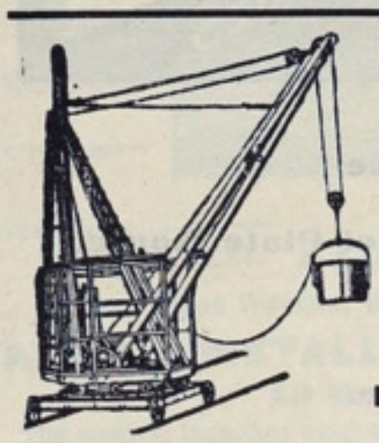

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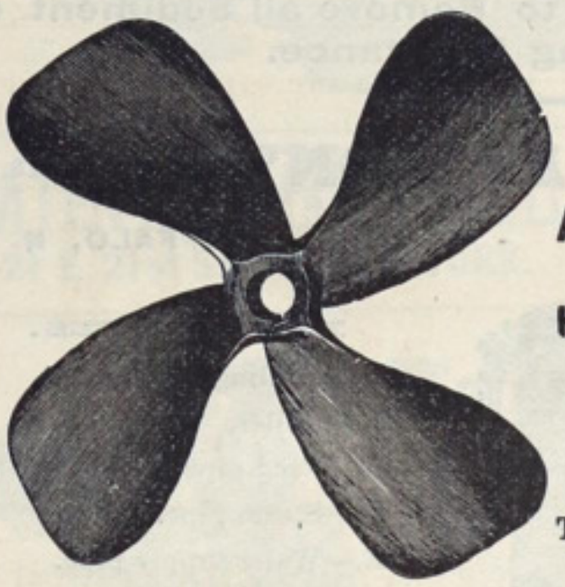

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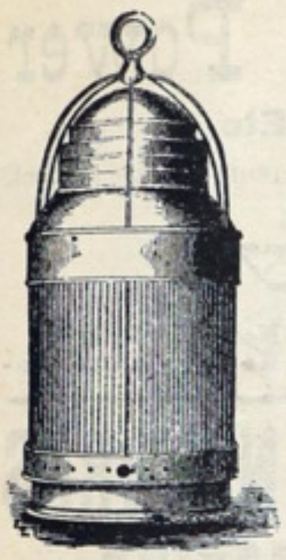

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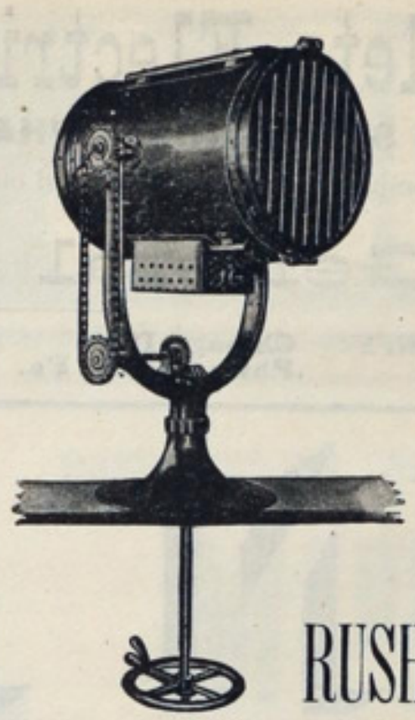

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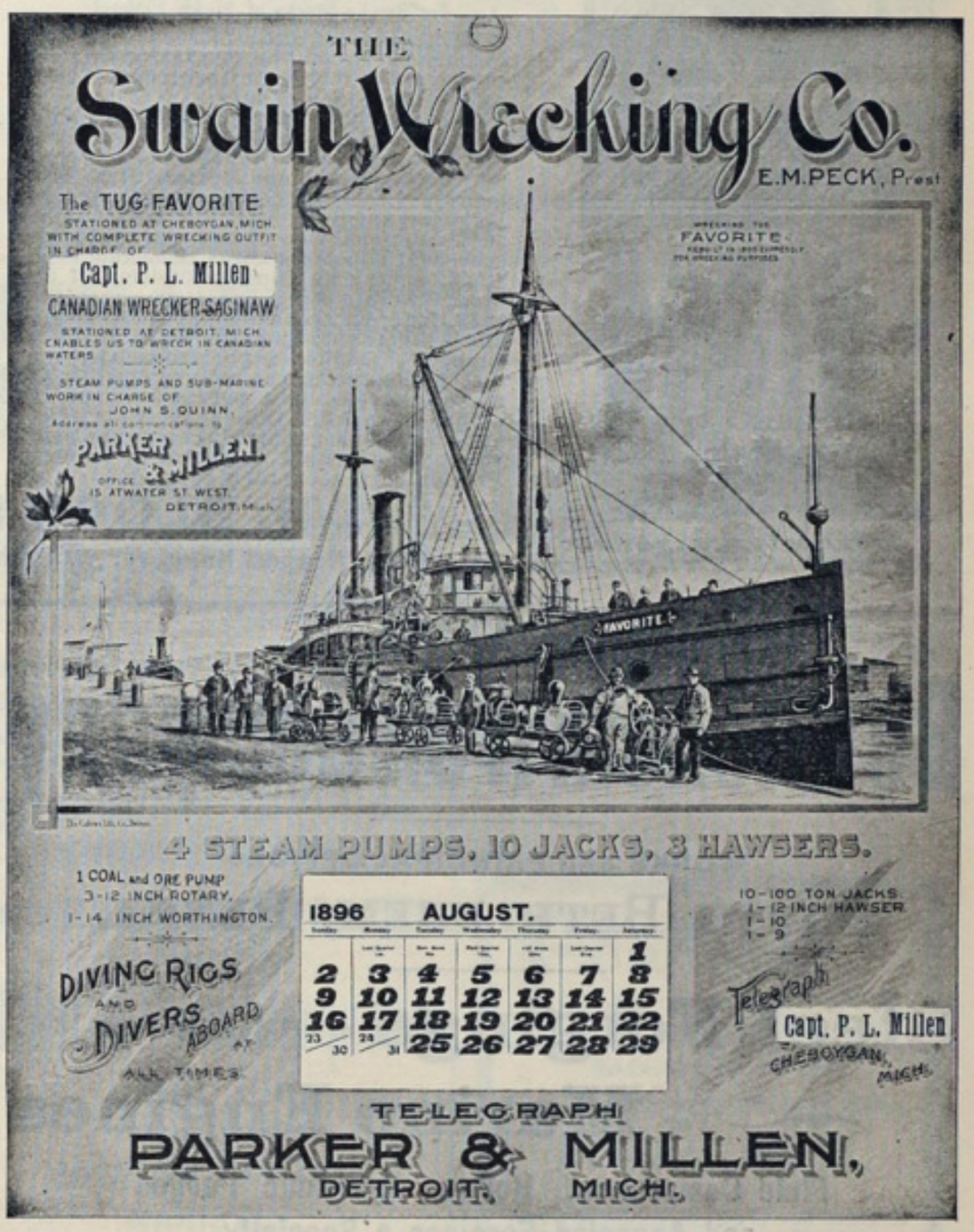

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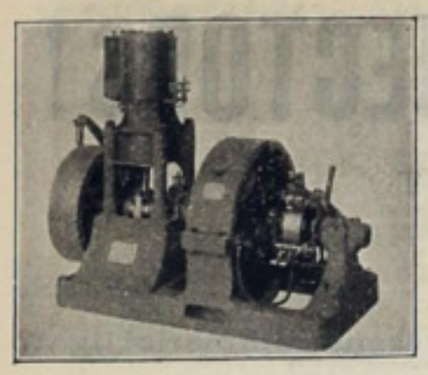

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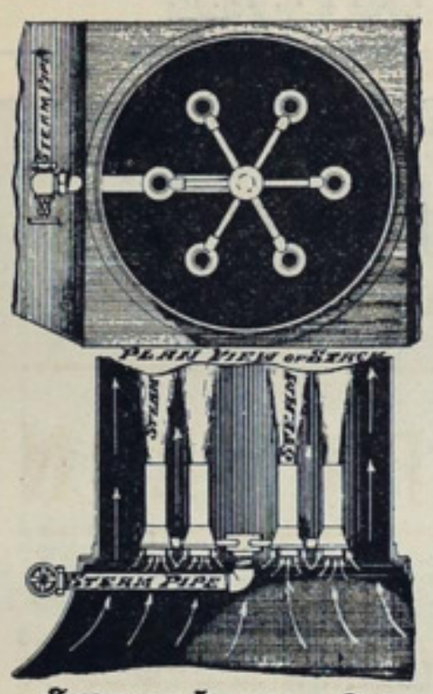

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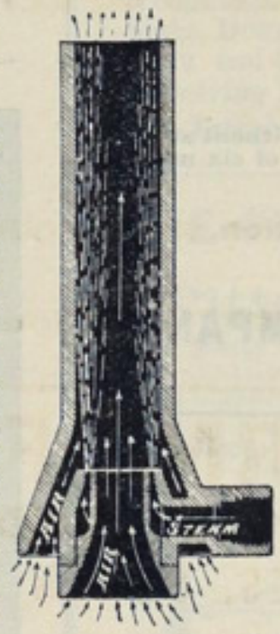

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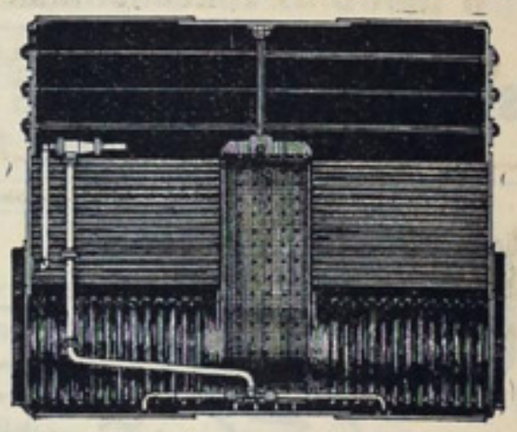

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